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Problems Implementing Problem-Based Learning by a Private Malaysian University

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ABSTRACT

In this case study the focus is on lecturers' readiness in the design of PBL problems and to facilitate students' learning. This paper also looks into students' readiness in terms of acquiring metacognitive skills and collaborating in group to solve PBL problems. Problems encountered by both lecturers and students are discussed in the context of the chosen private Malaysian university.

INTRODUCTION

A well-known private Malaysian university embarked on problem-based learning (PBL). A trainer from the United States of America was engaged to show lecturers how to teach PBL way. In this training they were shown the essentials of PBL, pitfalls to avoid (as practised in USA, not in Malaysia), and some PBL related exercises to carry out during the training. Thereafter lecturers are supposed to implement PBL in the university. Even though the training lasted three days, majority of them have no idea how complex PBL is and how ill-prepared they are to implement it. Since it is a directive from the top management PBL was rolled out and it immediately hit the road to failure as students complained they did not learn anything through PBL and lecturers said they were not well trained. Where did it all go so severely wrong?

First, it is the training per se. It is a one-off training which lasted three days. Teaching using PBL approach is a drastic change from teacher centred teaching and lecturers need all the support they can get. There should be more follow-up trainings arranged for the lecturers in order to guide them follow by continuation of monitoring and support for the lecturers (Coffin, 2013).

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Second, we encountered three major obstacles they are, first designing the problems, second students' metacognitive skills and finally lecturers' readiness for this student centred approach. These obstacles are in line with the three key elements of PBL (Majoor et al., 1990). Sockalingam and Schmidt (2011) found that PBL problems designed by the lecturers are not directly link to the intended learning outcomes and they do not trigger students' interest as they are not real-world problems. Some problems are straight forward they do not stimulate critical thinking.

Designing PBL Problem

The first big hurdle in the implementation of PBL in this private university for one semester of 14 weeks in a class of 32 students is to design good PBL problems which incredulously were overlooked by the trainer from USA. In order to design credible PBL problems lecturers need to have industrial experiences to rely on or to the very least they need to have exposure to real-world happenings. For a PBL problem to be as realistic, exciting and engaging it is usually multidisciplinary cutting across the curriculum (Swan et al., 2013). Under such a situation, students who have not yet been taught certain topics which are needed to solve the problem will struggle with it. In Malaysia, there is no coordination among different faculties on the sequence of topics introduced to the students. Hence, PBL problems which are multidisciplinary will remain an issue for both the lecturers and students. Unless and until we can implement PBL across the campus where every faculty subscribes to this method of teaching we cannot synchronise the sequence of topics taught.

Another approach to tackle multidisciplinary PBL problem is to place students from different faculties or disciplines in the same group. The advantage obtains here is the elaboration of knowledge between students from the same discipline and co-constructions of knowledge between students from different disciplines (Imafuku et al., 2014). One major disadvantage is students may not contribute actively to the discussions on the contents of other disciplines and hence may choose to remain quiet. In Malaysia, it is not a normal practice to place students from different disciplines in the same class let alone to get them to work on a PBL problem. Students from their respective discipline have to follow a set of syllabus which is controlled by the university and monitored by the Malaysian government.

In the case of a class of 32 students, for a particular course, the PBL problem was taken from a text book which is not multidisciplinary and it was implemented for two weeks. The author observed this particular lecturer in her implementation of PBL. She placed the students in groups of 4 or 5 students and each group was given a similar PBL problem. Each week every group had to present to the class possible responses to the problem. There were inter-group discussions and comments based on the presentations and the lecturer summed up the discussions. This exercise took approximately two hours per week. While students were working in group (approximately an hour per week) trying to tackle the problem, the lecturer

offered assistance to groups that needed it. For all the groups, she assisted them by providing reading materials in the form of journal articles, book chapters, Internet links, etc.
The selection of PBL problems from the text book must match the learning outcomes of the course. Otherwise, the lecturer wrote the PBL problem herself which again is not multidisciplinary and it was implemented for two weeks. As in the case of problem taken from a text book, students work in groups and presented their possible responses each week. Certain topics in the course were taught lecture style as the topics are abstract (lecturer's opinion) and it is best to lecture them rather than through PBL manner. Hence, throughout the semester the course was taught using either PBL problems (from a text book or from a lecturer) or lecture style. There were a total of six PBL sessions of two weeks each and another two weeks were used for lecture. There was no online discussion.

The design of PBL problem is a critical step because PBL is constructed around problems. Research suggests that learning transfer will be more successful and students will be more cognitively and affectively engaged in problem solving if problems are authentic and meaningful within their profession (Wirkala and Kuhn, 2011). Hallinger and Lu (2011) demonstrated authentic problems can be designed with careful consideration of students' work environments and with lecturer collaboration to develop performance-based assessments of project outcomes.

Another key factor to consider in the design of PBL problems is problem familiarity. Research has shown that unfamiliar problems may be less effective because students are unable to relate to them and therefore, have less productive group discussions (Loyens et al., 2012).

In order to have PBL problem which is authentic and set in a familiar local environment, lecturers without industrial experiences should be given leave to gain exposure working in related industries. It can be considered as industrial sabbatical leave for a period of at least one semester. Lecturers with industrial and teaching experiences should be taught how to create PBL problems through workshops and seminars; bring in local experts who have vast exposure in PBL to conduct the trainings.

Students' Metacognitive Skills

Students need to acquire metacognitive skills to solve any given PBL problem. Among the skills are how to analyse the problem, determine students own strengths and weaknesses, strategy to solve the problem and plan to check the progress and re-strategize (if necessary) and reflect on the current approach (Ambrose et al., 2010). Students in Malaysia who are taught teacher centred manner while in secondary schools do not necessarily acquired these skills before attending tertiary education. Now, if this group of students is not equipped with metacognitive skills it is going to be difficult for them to follow PBL approach. Goldie (2012) agrees that reflection is an important dynamic of personality change and reflecting on how

they respond to new context can lead to change. In this regard, online forum discussion and e-portfolio play an important role in students' learning process.

In the class of 32 students mentioned earlier, to get students in a group to reflect on certain issues may be difficult as Malaysian students tend not to speak up when they are not sure. But to reflect in an online forum may be different as they can check the facts and be doubly sure before they hit the 'Enter' key. This attitude of 'correct answer only' needs to change for PBL to grow; students need to know in PBL most of the time there is more than one response. In the online forum discussion many views are put forward and it may lead to a change of attitude mentioned (correct answer only). Hence, it would be beneficial if online discussion was used in the class of 32 students. They could continue their group discussion in the forum and likewise bring the online forum discussion to the class for further deliberations.

When students create their e-portfolio they tend to reflect on their strengths and their achievements which indirectly tell them their weaknesses. Keeping e-portfolio is not common among Malaysian students. One effective way to get them into e-portfolio is to make it as a form of assessment in the coursework component. For instance, students in the class of 32 can reflect on their experiences in learning the course through PBL approach in the e-portfolio and some marks are allocated for these reflections. Unfortunately, it was not done for that class.

For PBL to work students need to co-construct knowledge and be highly interactive in team work (Hmelo-Silver and Barrows, 2008). These basic requirements for PBL to work run contrary to Malaysian students' education. From primary to secondary levels, Malaysian students are brought up in a very competitive environment. Every student wants to be the top in a class. This desire to compete is still very strong when they enter university. Khoo (2003) pointed out that the successful application of the PBL methods in Asian schools was impeded by students' strong consciousness of assessment during their performance and lack of confidence in sharing their opinions.

In the class of 32, the desire to be the top student in a group was not observed. However, the level of collaboration and co-construction of knowledge among students needs much improvement. Students in this class were thrown into PBL and they were not equipped with these two skills for them to be effective players in a PBL setting. Moving forward, a Centre for Student Learning Support should be set up for students to attain metacognitive skills through trainings and coaching. The centre can also be used to promote PBL and other student centred learning strategies.

Generally, students in Malaysia take comments and feedback of their work and ideas personally. As such, many students refrain from speaking up for fear of hurting their friends' feeling. Imafuku et al. (2014) concurs that group atmosphere, interpersonal relationships with

members and their cultural assumptions influenced students' participation in PBL tutorial. Some students choose to remain quiet and adjust their behaviour to the social expectation of the group for fear that their contributions might disrupt the group atmosphere and the flow of members' discussions.

PBL's heavy reliance on self-directed learning, reflection and collaborative discourse may disadvantage certain group of students who are less inclined to engage in questioning and reflection (Scott, 2014). It may be appropriate to conduct a learning styles questionnaire to determine the need for additional instruction and scaffolding so that students can acquire successful experience with PBL. If students are grouped according to their learning styles, then additional instruction and scaffolding can be targeted at groups that needed the most.

Lecturers' Readiness

Are the lecturers ready for PBL? Lecturers who used to be the content experts now guide, advise and empower students to take charge of their learning process. They facilitate instead of lecture. One common question asked by the lecturers is what do I do when I facilitate? As facilitators lecturers must possess communication and social skills and have genuine interest in students' learning. One of the most challenging and difficult aspect in the implementation of PBL is to get lecturers to truly understand and practise their roles and functions as facilitators to support students in their learning. Among some of the required skills as facilitators are using questions to support reflection, metacognitive skills development, and collaborative knowledge building; encouraging members to share and elaborate on their knowledge; fostering individual and team ownership of their learning; helping teams create a climate and structure that encourages collaborations; and scaffolding problem-solving and learning strategies by modelling effective behaviours (Hmelo-Silver and Barrows, 2008). In order to minimise this difficulty lecturers can form a Community of Practice which comprises their peers who have similar mind-set and interest in PBL including virtual peers in the Internet. This community can meet every fortnight to discuss any issues or difficulties in the implementation of PBL. To start the ball rolling, the director of Teaching and Learning can initiate the first meeting and thereafter it should be taken over by any member of the community to call for a meeting. They can decide on specific topics to discuss or it can be a free discussion on any topic related to PBL.

In the class of 32 students, the three days training given by the USA trainer is not sufficient to equip the lecturer with the skills needed to facilitate. For instance, during group work the lecturer walked around the class providing assistance where needed. But she did not know how to encourage students to share and build on the knowledge (she merely pointed them to the predetermined 'answer'); she did not know how to foster team ownership and collaboration especially for groups which were 'lost' and quiet (she merely asked them to focus on certain areas). When the focus is on teaching, lecturers are trained on various

instructional strategies. Now when the focus is shifted to learning, lecturers need to be re-trained on how to facilitate and support students' learning.

Not many lecturers are comfortable with PBL because they cannot shed off their content provision role easily. When they were asked to prepare learning activities in the PBL problem one of them enquired "When can I use PowerPoint slides to teach?" They have developed a strong bond with PowerPoint slides so much so some of them simply cannot teach without the slides.

A few of them mixed up problem-solving skills with PBL although such skills are often the by-products of PBL. One lecturer even questioned the wisdom of implementing PBL by asking what's wrong with teacher centred teaching. Lecturers need to realise the significance of student centred learning in particular PBL in their students' future. It is very likely five years from today (2014) students will be working for jobs that do not even exist now. How can any university prepare her students for jobs that do not exist today? One possible solution is to teach our students how to learn, un-learn and re-learn. Students can acquire these skills through PBL activities.

Again with reference to the class of 32 students, lecturers have to re-look into their roles, that is, changing from preparing lecture notes to support lecturers' teaching to preparing learning activities (like PBL problem) to support students' learning. In the class mentioned, the PBL problems created by the lecturer were not stimulating and complex enough to catch students' attention. A few groups 'solved' the problem before the given duration of two weeks. The lecturer was at lost on what to do with these groups of students.

REFLECTIONS

There is no doubt trainings are needed to assist lecturer acquire complex teaching competences which involve knowledge, skills, engagement and personal commitment. In addition to workshops, short introductory seminars and scenario-based discussions should be used as follow-up activities. This series of trainings should run for at least a year and to enhance the quality of training the usage of technology and web-based activities are included. Lecturers can form their own support group to assist each other in terms of students' resistance to the change-over to PBL, technical difficulties, sharing of ideas and experiences in developing PBL problems, and last but not least moral support.

It is also pertinent lecturers buy in the reasons to change to PBL for the benefits of the students; to better prepared them for the job markets of the 21st century. Once lecturers have accepted PBL they should be ready to face PBL challenges and overcome obstacles along the way.

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